Promising environmental health researchers receive Superfund award

By Sara Mishamandani

Five exceptional NIEHS-funded Superfund Research Program (SRP) trainees received the 2013 K.C. Donnelly Externship Award Supplement, to enrich their research in environmental health science at another institution. Now in its third year, the annual award was established to honor environmental health researcher and Superfund grantee Kirby (K.C.) Donnelly, Ph.D.

Audrey Bone

Bone is a graduate student at the Duke University SRP, under the guidance of Richard Di Giulio, Ph.D. Her current research project involves evaluating the effects of nanomaterial-based degradation on toxicity of polycyclic aromatic hydrocarbons (PAHs). She will be conducting a six-week externship at Oregon State University (OSU), where she will learn to use the zebrafish developmental toxicity bioassay and molecular tools developed at OSU to understand the toxicity pathways associated with byproducts from PAH degradation by nanoparticles. Robert Tanguay, Ph.D., will provide mentorship while she is there.

Leah Chibwe

Chibwe is a graduate student at the OSU SRP, under the guidance of Staci Simonich, Ph.D. She will complete a three-month externship at the University of North Carolina at Chapel Hill (UNC) with Michael Aitken, Ph.D. Chibwe will work to identify potentially genotoxic compounds in bioremediated soil, originally contaminated with PAHs. She plans to conduct the novel DT40 bioassay to characterize genotoxicity associated with pre-remediated and post-remediated soil samples. She will also investigate whether parent PAHs are converted to oxygenated PAH byproducts, which are more water-soluble, bioavailable, and potentially more toxic.

Shohreh Farzan, Ph.D.

Farzan is a postdoctoral researcher at the Dartmouth Toxic Metals SRP, under the guidance of Margaret Karagas, Ph.D. She will complete a three-month externship at New York University with Yu Chen, Ph.D., in collaboration with the Columbia University SRP. Using existing data from the Health Effects of Arsenic Longitudinal Study cohort in Bangladesh and data from Karagas' New Hampshire arsenic studies, Farzan will examine the role of arsenic exposure on blood pressure over time and in relation to cardiovascular disease-related mortality.

Erin Madeen

Madeen is a graduate student in the OSU SRP, under the mentorship of David Williams, Ph.D. She will complete a three-week externship at the Lawrence Livermore National Laboratory in California with Ted Ognibene, Ph.D. Madeen will be conducting analysis of high molecular weight PAHs in blood and urine from human volunteers, following microdosing with environmentally relevant amounts of labeled PAHs. She will learn to use moving wire technology, a high-performance liquid chromatography system that can separate individual metabolites coupled to accelerator mass spectrometry, for metabolite quantitation.

James Rice, Ph.D.

James Rice is a postdoctoral research associate with the Brown University SRP,under the guidance of Eric Suuberg, Ph.D. Rice will conduct a three-month research externship at the Fisherville Mill Brownfield site in Grafton, Mass., with Robert Burgess, Ph.D., a staff scientist at the U.S. Environmental Protection Agency. Rice will lead a passive sampler study in the Blackstone River at the Fisherville Mill site, to monitor contamination of heating oil, containing petroleum hydrocarbons, and other potential pollutants.

(Sara Mishamandani is a research and communication specialist for MDB Inc., a contractor for the NIEHS Superfund Research Program and Division of Extramural Research and Training.)

Honoring a mentor and a scholar with generous externship support

Donnelly, who died in 2009 after a distinguished career with the Department of Environmental and Occupational Health at the Texas A&M Health Science Center School of Rural Public Health, was a dedicated mentor to his students and postdoctoral researchers, instilling in them the importance of applying their knowledge and findings to improve the health of communities exposed to environmental contaminants. To honor Donnelly, the award supports SRP graduate students and postdoctoral fellows who are pursuing transdisciplinary research, and emphasizes the importance of research application and collaboration to promote human health.

The award provides the SRP trainees with up to $10,000 to fund supplies, travel, housing, and costs for research, training, and collaboration at other SRP centers, government laboratories, and state, local, or tribal agencies, for up to three months.

"Acquiring the skill of properly executing the zebrafish assay, and analyzing the subsequent data, will not only advance my current project, but will provide a tool that I will be able to use in my career as an environmental toxicologist," said Bone. (Photo courtesy of Audrey Bone)

"This externship will give me the opportunity to learn about the operation of the UNC lab-scale bioreactor and the DT40 bioassay technique at UNC to evaluate the human health impacts of PAHs at Superfund sites," said Chibwe. (Photo courtesy of Leah Chibwe)

"I am eager to train with Dr. Yu Chen, who will help me to develop a more diverse skill set, as well as expose me to an area of research that has broad applications for future work," said Farzan. (Photo courtesy of Shohreh Farzan)

"This externship will enhance my research skills and knowledge of an exciting and innovative environmental sampling technique," said Rice. "It will also be my first opportunity to partner with and conduct research at a government laboratory, providing me with experience connecting academic research to government and professional practice." (Photo courtesy of James Rice)

"Moving wire is a new technology, and our project is the first metabolite study on this system," said Madeen. Lawrence Livermore National Laboratory is in a unique position to provide valuable training that I can bring back to my laboratory at OSU. We will rely heavily on the moving wire platform for future projects." (Photo courtesy of Erin Madeen)

The Environmental Factor is produced monthly by the National Institute of Environmental Health Sciences (NIEHS) *(http://www.niehs.nih.gov/)*
, Office of Communications and Public Liaison.

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